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INFORMATION REPORT

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COUNTRY USSR

SUBJECT Assessment of Utilization of Oxygen in the Cupola by
V Krasnov

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UTILIZATION OF OXYGEN IN THE CUPOLA

By V Krasnov, Laureate of the Stalin prize and Director
of the S M Kirov plant "Dinamo"

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1. Considerable experimental work has been done at the S M Kirov plant "Dinamo" in order to find out the effectiveness of utilization of oxygen in the process of production of pig iron.
2. Oxygen was introduced into the cupola (or blast furnace) in form of gas obtained by gasification of liquid oxygen. The average consumption of oxygen was 3 to 4 m³ on one ton of metal, and the rate of consumption during the process varied between 5 and 10 m³ per minute and per m² of the section through the cupola.
3. The advantages of the oxygen blast, or oxygen-enriched blast are as follows:
 - a) The productivity of the cupola increases 1.5 to 2 times, depending on the oxygen content of the blast, as compared with a cupola working with a simple air blast. The production process is a continuous one.
 - b) The temperature of the molten metal increases in direct proportion with the content of oxygen of the blast, and it can be increased up to 1420°C (with a simple air blast - 1390°C). The higher temperature improved the quality of castings; there were less casting defects, and less of scrap metal.
 - c) The introduction of oxygen permits the increase of temperature without use of additional fuel.

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4. The article is only a survey and contains no technical data other than mentioned in the report. Similar experiments in this country were made already more than 10 years ago

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[REDACTED] the (oxygen-enriched air) method has been used only experimentally because there is as yet no sufficiently economical way of obtaining the oxygen-enriched blast. Experimental work has shown the same improvements as mentioned now in the article of Krasnov.

5. However, oxygen-enriched air is used in the US in open-hearth furnaces.
6. The Soviets frequently do not care about the economy of a process, if some advantages have to be achieved; for instance, increased rate of production of pig iron or steel, which may be very important for the present time.

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